



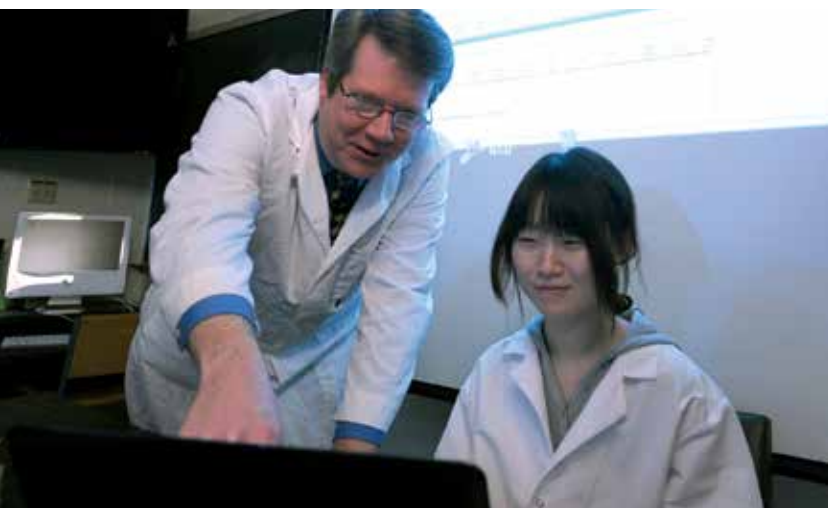
Improving Organic Spelt Quality to Meet New Marketing Opportunities in Ohio

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BACKGROUND

Spelt is an important crop for many organic farmers in Ohio and nationally. About one third of all U.S. spelt is grown on certified organic land, and Ohio is one of the leading producers, at nearly 100,000 bushels per year. An ancient grain, with archaeological evidence dating to 4700 BC, spelt is hulled wheat, classified as a subspecies of bread wheat. The U.S. Centers for Disease Control and Prevention reports increasing incidences of wheat sensitivity — 1 in 133 people, or 15 percent of the entire U.S. population. Many of these individuals are able to tolerate spelt, creating a marketplace niche for spelt products. As more people with wheat allergies turn to spelt as an alternative grain source, spelt production in Ohio is projected to surpass the 100,000 bushel mark within the coming years.

Ohio is home to one of the largest spelt companies in the U.S., Berlin Natural Bakery (BNB). The company pioneered the spelt movement in the U.S. in 1990 and goes to great lengths to ensure that its spelt products are pure with respect to wheat contamination. There is an extremely high-quality, chemical-free spelt grown in Germany, which is of a proprietary variety (Franckenkorn) and deemed superior in genetic purity and baking quality to U.S. spelt. This spelt variety provides consistent high quality, but because of its proprietary nature, U.S. farmers were not allowed to grow this specific spelt. As a result, Ohio's spelt producers have lost a significant market.



OBJECTIVES

There are two main factors, besides variety, which can influence the baking quality and safety of bread grains: high protein levels and good disease control. The objective of this research was to investigate the effects of two management factors — fertility and seed treatment for disease management — on production and quality of Oberkulmer, the organic spelt variety of interest to Berlin Natural Bakery.

In conventional production, it is well known that added fertility is critical for good grain protein levels. However, organic farmers do not fertilize spelt. In addition, an important element of the quality of German-grown Franckenkorn spelt has to do with disease management. Organic farmers in Ohio are just beginning to learn the value of good disease management in ensuring the food safety of organic bread grains, including spelt. Currently, there are no shelf-ready organic products comparable to conventional fungicides available to them. Because this research was done on certified organic research land, only certified organic-approved products could be used. A commercially available certified organic poultry manure product produced by Nature Pure was used, along with an organically-acceptable biological control seed treatment. In 2009, an experiment was established with the Oberkulmer variety that included three fertility treatments, both with and without the biological control seed treatment.

IMPACTS

Results of this research suggest that added fertility in the form of five to ten tons per acre of the poultry manure product, applied in the fall at planting and in the spring as top dress, could improve yields and protein. In this trial, yields increased 9–13 percent and grain protein increased by 0.3 to 0.4 percent in response to the added fertility. While the seed treatment was noted to increase yields by three percent, typical of such products, there was no noted effect on grain protein.

Future plans include conducting experiments looking at the effects of different sources of organic fertility, particularly disease-suppressive composts on grain production, disease and insect resistance, and specific proteins and starches that are functionally important in bread baking and processing. Since Ohio is one of the leading producers of spelt, this research is vital to Ohio's spelt production and its market success.



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